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10/781,005	02/18/2004	John Zarynow	PP8861	2408

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EXAMINER

DUNWOODY, AARON M

ART UNIT PAPER NUMBER

3679

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/781,005

Applicant(s)

ZARYNOW, JOHN

Examiner

Aaron M Dunwoody

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 45, 47-49, 51, 60 and 61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-9, 14, 15, 18, 19, 21-24, 26, 28-30, 52, 54, 55 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/10/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-3,6-9,14,15,18,19,21-24,26,28-30,45,47-49,51,52,54,55,57,60 and 61.

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DETAILED ACTION

Election/Restrictions

Claims 45, 47-49, 51, 60 and 61 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 2/10/2005.

Applicant's election with traverse of invented elected in the reply filed on 2/10/2005 is acknowledged. The traversal is on the ground(s) that justification of restriction of a materially different product appears to be unjustified. This is not found persuasive because the method of claim 45 further distinguishes its self as a process which can be used to make other and materially different product that does not require machining the cylindrical to provide at least one integral retaining groove.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 7, 14 15, 18, 19, 21-24, 26, 28, 52, 54, 55 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5868443, Ungerman et al in view of US patent 5837181, Leimbacher et al.

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In regards to claim 1, Ungerman et al disclose a composite coupling (30) for use in assembling a restrained joint between a plurality of pipes having pipe ends (10, 20) and external complementary restraining grooves axially spaced from the pipe ends, the composite coupling comprising a cylindrical composite body, the cylindrical composite body defining an axis and having a first end, a second end, an exterior surface and an interior surface; a first retainer groove (41) in the interior of the coupling, the first retainer groove being axially spaced from the first end; a first port (32), the first port communicating between the exterior surface and the first retainer groove; a second retainer groove (42) in the interior of the coupling, the second retainer groove being axially spaced from the second end; a second port (34), the second port communicating between the exterior surface and the second retainer groove. Ungerman et al does not disclose the cylindrical composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers. Leimbacher et al teach a composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings. As Leimbacher et al relates to thermoplastically formable composite materials, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a composite body with a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of

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the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings.

In regards to claim 2, Ungerman et al disclose the coupling further comprising means for sealing the pipes in a restrained joint to maintain a pressurized flow between the pipes through the restrained joint.

In regards to claim 3, Ungerman et al disclose the means for sealing the pipes including providing a seal (38, 39) between each pipe and the interior surface of the coupling.

In regards to claim 6, Ungerman et al disclose means to index a first pipe end so as to position a first complementary retainer groove coincident with the first retainer groove.

In regards to claim 7, Ungerman et al disclose means to index a second pipe end so as to position a second complementary retainer groove coincident with the second retainer groove.

In regards to claim 14, Ungerman et al disclose the first port being tangential to the first retainer groove.

In regards to claim 15, Ungerman et al disclose the retainer grooves being circumferentially arranged about the axis of the cylinder.

In regards to claims 18, 19, 21, 23 and 24, Ungerman et al in view of Leimbacher et al disclose the claimed invention except for the filaments in a first layer of the composite being disposed upon a winding angle of about +55 degrees relative to the cylindrical axis; a winding angle of about -55 degrees relative to the cylindrical axis; the

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winding angle being from 40 degrees to 65 degrees and the opposing winding angle being from -40 degrees to -65 degrees; the coupling having at least five layers of opposing windings; or the coupling having seven or more layers of opposing windings. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the filaments in a first layer of the composite being disposed upon a winding angle of about +55 degrees relative to the cylindrical axis; a winding angle of about -55 degrees relative to the cylindrical axis; the winding angle being from 40 degrees to 65 degrees and the opposing winding angle being from -40 degrees to -65 degrees; the coupling having at least five layers of opposing windings; or the coupling having seven or more layers of opposing windings, since the optimization of proportions in a prior art device is a design consideration within the skill of the art. In re Reese, 290 F.2d 839, 129 USPQ 402 (CCPA 1961).

In regards to claim 22, Ungerman et al in view of Leimbacher et al disclose the claimed invention except for the pipes to be coupled having an outer diameter of about 16 inches. It would have been an obvious matter of design choice to fabricate the pipes to be coupled with an outer diameter of about 16 inches, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 26, Leimbacher et al disclose the filaments being glass filaments.

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In regards to claim 28, Leimbacher et al disclose the thermoset matrix being epoxy.

In regards to claim 52, Ungerman et al in view of Leimbacher disclose method of assembling a restrained joint comprising the steps of providing a filament-wound composite coupling having a first end with a first retaining groove and a first port communicating with the first retaining groove, and a second end with a second retaining groove and a second port communicating with the second retaining groove;

providing a first pipe with a first complementary retaining groove and a second pipe with a second complementary retaining groove;

providing a first flexible spline and a second flexible spline;

inserting the first pipe into the first end such that the first complementary retaining groove of the first pipe is coincident with the first retaining groove and subsequently inserting the first flexible spline through the first port and into at least a portion of the coincident first complementary retaining groove and first retaining groove so as to axially lock the first pipe to the coupling, and,

inserting the second pipe into the second end such that the second complementary retaining groove of the second pipe is coincident with the second retaining groove and subsequently inserting the second flexible spline through the second port and into at least a portion of the coincident second complementary retaining groove and second retaining groove so as to axially lock the second pipe to the coupling, thereby assembling a restrained joint.

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In regards to claim 54, Ungerman et al disclose the filament-wound composite coupling further including O-rings to seal the first and second pipes to the coupling.

In regards to claim 55, Ungerman et al disclose the coupling further including means for indexing the first and second pipes to facilitate establishing coincident relationships for the complementary retaining grooves relative to the retaining grooves of the coupling.

In regards to claim 57, Ungerman et al in view of Leinbacher disclose a pipe system comprising:

- a plurality of pipes, each of the pipes of the plurality having two ends and an outward directed complementary retainer groove associated with each end;

- at least one filament-wound composite coupling, the coupling including two ends, two inwardly directed retaining grooves, each of the retaining grooves having a port communicating with the retaining groove,

- at least two flexible splines, each spline being insertable into one of the retaining grooves through the associated port-to axially lock a pipe end to the coupling by retaining a coincident relationship between the complementary retaining groove and the retaining groove, thereby defining a restrained joint of the pipe system.

Claims 1-3, 6-9, 14, 15, 18, 19, 21-24, 26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5758909, Dole et al in view of US patent 5837181, Leimbacher et al.

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In regards to claim 1, Dole et al disclose a composite coupling (12) for use in assembling a restrained joint between a plurality of pipes having pipe ends (22) and external complementary restraining grooves axially spaced from the pipe ends, the composite coupling comprising a cylindrical composite body, the cylindrical composite body defining an axis and having a first end, a second end, an exterior surface and an interior surface; a first retainer groove (28) in the interior of the coupling, the first retainer groove being axially spaced from the first end; a first port, the first port communicating between the exterior surface and the first retainer groove; a second retainer groove (28) in the interior of the coupling, the second retainer groove being axially spaced from the second end; a second port, the second port communicating between the exterior surface and the second retainer groove. Dole et al does not disclose the cylindrical composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers. Leimbacher et al teach a composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings. As Leimbacher et al relates to thermoplastically formable composite materials, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a composite body with a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of

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the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings.

In regards to claim 2, Dole et al disclose the coupling further comprising means for sealing the pipes in a restrained joint to maintain a pressurized flow between the pipes through the restrained joint.

In regards to claim 3, Dole et al disclose the means for sealing the pipes including providing a seal (27) between each pipe and the interior surface of the coupling.

In regards to claim 6, Dole et al disclose means to index a first pipe end so as to position a first complementary retainer groove coincident with the first retainer groove.

In regards to claim 7, Dole et al disclose means to index a second pipe end so as to position a second complementary retainer groove coincident with the second retainer groove.

In regards to claim 8, Dole et al disclose the means to index the first complementary retainer groove with the first retainer groove being a pipe stop (20), the pipe stop limiting the depth of insertion of the first pipe into the first end of the composite coupling.

In regards to claim 9, Dole et al disclose the means to index the second complementary retainer groove with the second retainer groove being a pipe stop, the pipe stop limiting the depth of insertion of the second pipe into the second end of the composite coupling.

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In regards to claim 14, Dole et al disclose the first port being tangential to the first retainer groove.

In regards to claim 15, Dole et al disclose the retainer grooves being circumferentially arranged about the axis of the cylinder.

In regards to claims 18, 19, 21, 23 and 24, Dole et al in view of Leimbacher et al disclose the claimed invention except for the filaments in a first layer of the composite being disposed upon a winding angle of about +55 degrees relative to the cylindrical axis; a winding angle of about -55 degrees relative to the cylindrical axis; the winding angle being from 40 degrees to 65 degrees and the opposing winding angle being from -40 degrees to -65 degrees; the coupling having at least five layers of opposing windings; or the coupling having seven or more layers of opposing windings. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the filaments in a first layer of the composite being disposed upon a winding angle of about +55 degrees relative to the cylindrical axis; a winding angle of about -55 degrees relative to the cylindrical axis; the winding angle being from 40 degrees to 65 degrees and the opposing winding angle being from -40 degrees to -65 degrees; the coupling having at least five layers of opposing windings; or the coupling having seven or more layers of opposing windings, since the optimization of proportions in a prior art device is a design consideration within the skill of the art. In re Reese, 290 F.2d 839, 129 USPQ 402 (CCPA 1961).

In regards to claim 22, Dole et al in view of Leimbacher et al disclose the claimed invention except for the pipes to be coupled having an outer diameter of about

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16 inches. It would have been an obvious matter of design choice to fabricate the pipes to be coupled with an outer diameter of about 16 inches, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 26, Leimbacher et al disclose the filaments being glass filaments.

In regards to claim 28, Leimbacher et al disclose the thermoset matrix being epoxy.

In regards to claim 29, Dole et al disclose the means for indexing being a snap ring.

In regards to claim 30, Dole et al disclose the snap ring being bonded to the interior surface.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure because it illustrates the inventive concept of the invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron M Dunwoody whose telephone number is 703-306-3436. The examiner can normally be reached on 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P Stodola can be reached on 703-306-5771. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Aaron M Dunwoody
Examiner
Art Unit 3679

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